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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,452	11/16/2001	Satoshi Aoyagi	SIW-022	5172

959 7590 09/16/2005

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EXAMINER	
AUSTIN, MELISSA J	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/988,452	AOYAGI ET AL.	
	Examiner	Art Unit	
	Melissa Austin	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *18-34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 July 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-35 are pending in this application after the amendment submitted 11 July 2005. Claims 18-34 are withdrawn.

Priority

2. Acknowledgement is made of receipt of a translation of the foreign priority document; however, the translation is not filed together with a statement that the translation of the certified copy is accurate and is, therefore, not acceptable to antedate the prior art of record. See MPEP §201.15.

Claim Objections

3. A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.

A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. (5,964,309), in view of Singh et al. (6,572,993). Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Kimura teaches a power supply system with a stack of fuel cells connected to a storage battery. The reacting gases are supplied to the fuel cell in amounts based on the estimated output of the fuel cell, the charge of the storage battery, and the amount of power required by a load. The feed amount includes the amount required for providing the required power to the load and a feed adjustment based on the charge state of the storage battery. The storage battery may be charged by the fuel cell and/or supply energy to the load in addition to that supplied by the fuel cell (abstract, Figure 7). However, Kimura fails to teach a capacitor that is directly connected to the fuel cell. Singh teaches a system in which batteries and capacitors/supercapacitors (also known as double layer capacitor) are charged by a fuel cell and provide additional power to a load. The current-voltage characteristics of the fuel cell and of the energy storage device (whether it be a battery or capacitor) inherently depend on their respective internal resistances (Ohm's Law: V=IR). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made would have recognized the ability of a capacitor to perform the same function as the storage battery, as taught by Singh, in the fuel cell power supply system as taught by Kimura because batteries and

capacitors are equivalent means to provide additional power to a load and to be charged by fuel cells.

6. Claims 5-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. (5,964,309), in view of Singh et al. (6,572,993) and further in view of Suguira et al. (US 2002/0038732). Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Kimura and Singh teach the elements of claims 1-4 as discussed above and incorporated herein but fail to disclose response time of the reacting gas supply system shorter than the output assistance period of the capacitor. Suguira teaches that in case of a response delay in the output of a fuel cell, a battery may compensate for the shortage of electric power with respect to the required electric power of the load. The power generated by the battery gradually decreases as the output electric power of the fuel cell increases to approach the required electric power of the load. This control makes it possible to supply electric power with a high response. (Page 3, [0043]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the response time of the fuel cell/reacting gas supply system shorter than the output assistance operation period of the capacitor or set the capacitance of the capacitor such that the output assistance operation period is longer than the response time of the fuel cell/reacting gas supply system in order to supply electrical power with a high response.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP08-214452 to Takeshi teaches an electric double layer capacitor in parallel with and charged by a fuel cell.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

MJA
Melissa Austin
Patent Examiner
Art Unit 1745

PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER